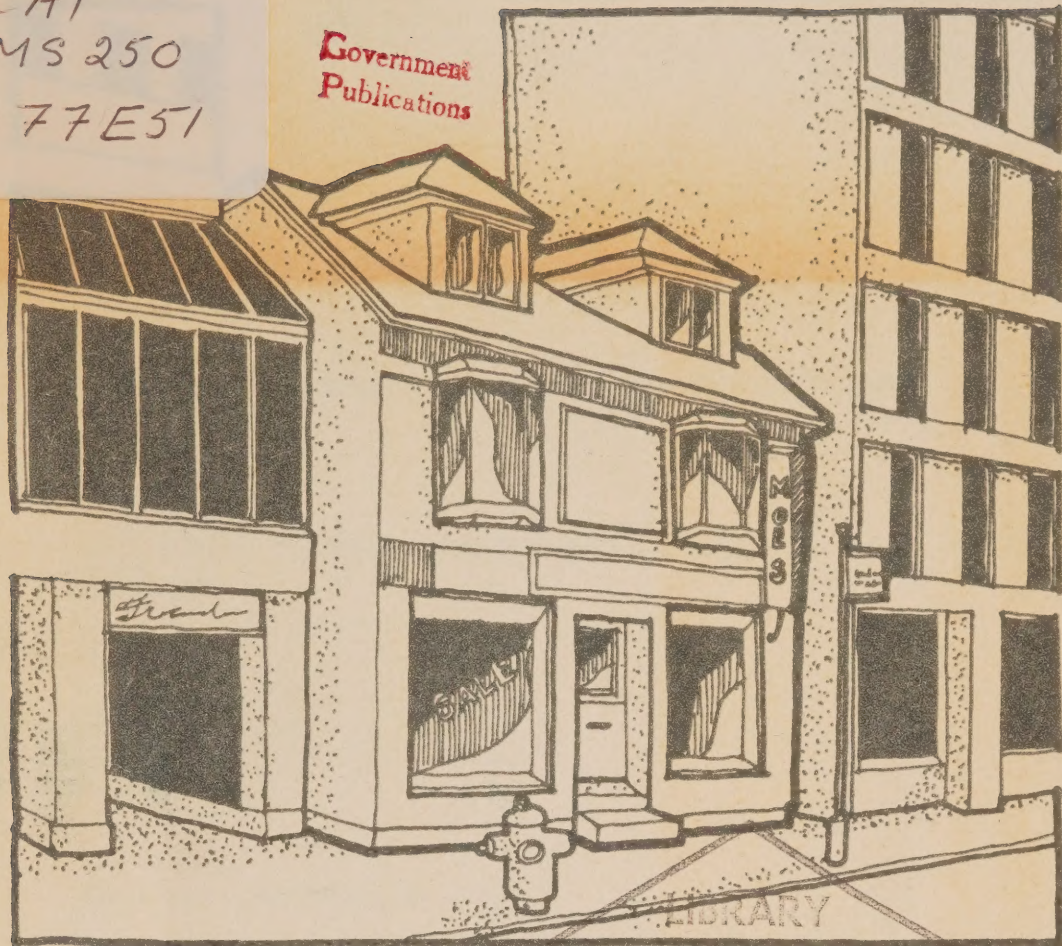


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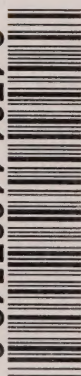
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energy conservation is good business


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IN YOUR SMALL BUSINESS

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ENERGY CONSERVATION IS GOOD BUSINESS

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Written and published by



Energy, Mines and
Resources Canada

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Ressources Canada

**Office of Energy
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**Bureau de la conservation
de l'énergie**

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INTRODUCTION

Energy prices in Canada have gone up sharply over the past 4 years. Foreign oil no longer is cheap and new Canadian sources of oil, natural gas and electricity are very costly. As energy prices continue to rise, efficient energy use will be increasingly important to your business.

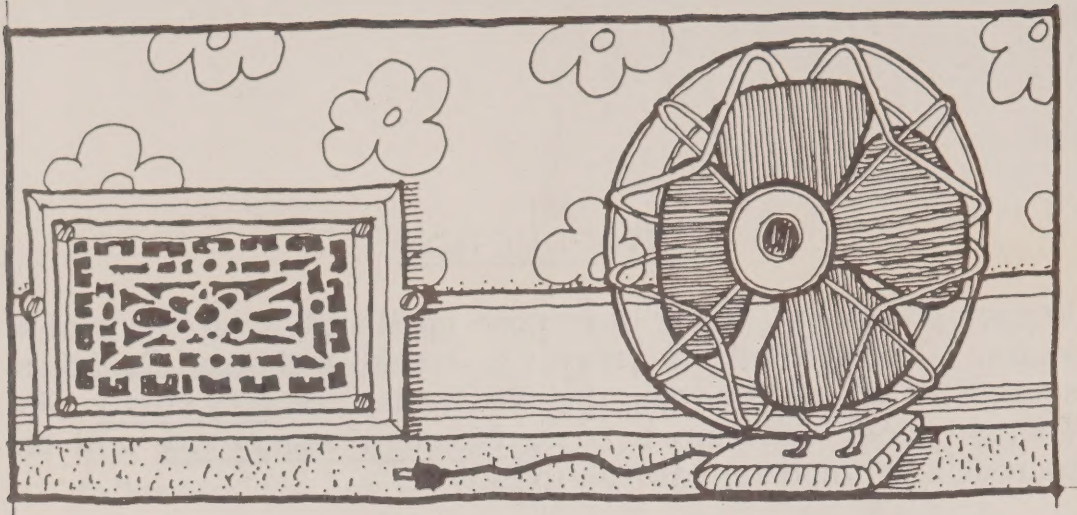
This booklet has 71 tips for saving energy in small businesses. Some of these tips may help you to increase your profits by reducing your energy costs.

Many business owners are seeing that they can cut their energy bills by at least 20%, simply by putting into effect low-cost or no-cost energy saving measures. And, of course, even larger savings can be achieved when major improvements are made in buildings or equipment.

There are a few points you should keep in mind when you think about energy conservation measures: (1) Get expert advice, especially when you are looking at measures which cost money to put into effect. (2) Make sure that your plans do not violate any safety regulations, or by-laws. (3) Before you plunge ahead, figure out a rough energy conservation plan. This will help you to avoid unnecessary work or expense (eg. fixing a piece of equipment and then deciding it should be replaced). (4) Encourage employees to co-operate fully by discussing energy conservation measures with them and listening to their ideas. You could get some very good suggestions from your employees.

This booklet obviously is not a complete list of everything a business person can do to use his energy more efficiently. But it is an "idea source" which you can use when you work out your own energy conservation plans.

When you think about the tips that apply to your business, you may find that your energy bills are higher than they need to be.



HEATING AND COOLING

I Reducing Winter Heat Loss

1. Check the insulation in your building. If you do not have very much insulation or if it's in poor condition (e.g. wet, packed down, incomplete) consider upgrading it. If you add insulation to your building, you could cut your heating bills by 30% or more. Use the order form on the last page to get a free copy of Keeping the Heat In - a book which tells you all about insulation types and insulation upgrading.

Note: Insulation helps keep heat out on hot summer days.

2. Heavy curtains can be closed at night or on cold, dark days to reduce heat loss through windows. (When the winter sun is shining, let the sunlight in to help heat the building.)
3. Use putty, caulking, weatherstripping, storm doors (or insulated doors) and storm windows to keep the heat in and the cold out during the heating season. If a storm door isn't practical for you, consider building a simple vestibule, especially if a lot of people come through your front door every day.
4. Make sure your doors to the outside swing shut easily or have properly working door closers.

5. Eliminate any unnecessary openings which allow cold air to enter the premises. Watch for:
 - a) gaps around warped door or window frames
 - b) ventilation fans with no outside covers. (If covers are there make sure they close tightly when the fans are off.)
 - c) spaces between the sill plate and the foundation
 - d) openings where wires or pipes enter the building
 - e) unused doorways or windows (plug with an insulated board and seal).

II Oil or Gas Heating

6. Oil furnaces should be checked and cleaned at least twice a year - once in summer and once half way through the heating season. Gas furnaces should be checked and cleaned at least once a year by a qualified, licenced service person. Regular furnace maintenance could cut your annual heating bill by 10% or more. Use the order form on the back page to get a free copy of Billpayer's Guide to Furnace Servicing - a book that will help you to keep your furnace in top shape.
7. Oil and gas furnaces need a good supply of clean air to work efficiently. Make sure that your furnace room is well ventilated and not too dusty.

Note: Never block the air intakes on the sides of a gas furnace

8. Seal any leaks in hot air ducts. You can use heat resistant tape or heat resistant caulking compound. If the ducts run through unheated areas (eg. an unheated basement) they should be insulated with 1-2 inches of mineral wool batts. (Consult Keeping the Heat In)

III Steam or Hot Water Heating

9. Have a reliable service person check your system from time to time. (If you have a steam system, make sure he inspects the steam traps.)
10. Flush out small boilers once a month during the heating season. Drain water through the "flushing valve" until it runs clear. After flushing, refill the boiler to the proper level.
11. Check your boiler frequently for unusual temperatures or pressures. They could be the first signs of boiler problems.
12. Make sure steam or hot water pipes are properly insulated. The insulation should not be wet, worn, cracked, torn or incomplete.
13. Check radiators frequently to make sure they are working properly. If you have hot water heating, bleed air from your radiators each fall by opening the vent screw until water spurts out. Air in a hot water radiator can block water flow.
14. Consider installing reflectors behind your radiators to direct heat toward the center of the room.
15. In any heating system, keep heat outlets (radiators, warm air registers, baseboard heaters) clean and unobstructed.

IV Air Conditioning

16. Take good care of air conditioners.
 - Inspect and clean filters about once a month during the cooling season. Replace when necessary.
 - Remove dust and dirt from cooling coils each spring.
 - Make sure that the intake openings are clean and unobstructed.
17. Reduce the load on your air conditioner by using drapes, blinds or awnings to reflect summer sunlight.

18. Run air conditioning only when clearly necessary. Experiment with higher temperature settings.
19. In general, keep windows closed when the air conditioning is on. If you run an air conditioner most of the time during the summer, leave storm windows on to help keep cool air in and warm air out.
20. Try not to cool (or heat) spaces unnecessarily. Storage rooms, washrooms, hallways and basements usually don't need as much cooling or heating as work or customer areas.

V Ventilation

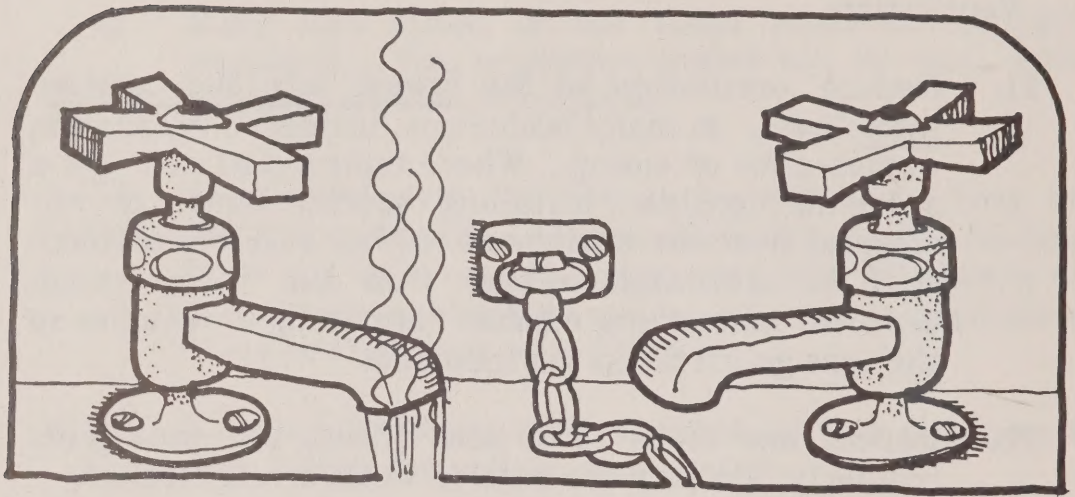
21. Reduce ventilation to the lowest safe and comfortable level. In many businesses, unneeded ventilation wastes a lot of energy. Where fumes, dust etc. are a problem, consider installing special hoods or enclosures over the equipment so that only the problem area is ventilated, rather than the entire room. Consider connecting exhaust fans to light switches so the fans go off when the lights do.
22. Inspect and clean fans, vent filters and vent grills regularly. Be sure the outside vents aren't blocked.

VI Thermostats

23.
 - a) Consider keeping your heating thermostat at 20°C (68°F) during working hours and turning it down to 17°C (63°F) before closing. This could reduce your annual heating costs by as much as 15%.
 - b) Consider setting your air conditioning thermostat at 25°C (77°F) or more during the day and cutting air conditioning back further after hours. There are timing devices which will adjust thermostats automatically.
24. Make sure your thermostats are giving accurate readings. Have them checked periodically and position them so they give average room or building temperatures. The heating thermostat should be on an inside wall away from drafty areas. The cooling

thermostat should be away from heat sources or sunny spots.

Note: If your air conditioning and heating systems are interconnected, turning up the air conditioning thermostat could turn on your furnace. Similarly, turning down your heating thermostat could turn on your air conditioning. Each system would be responding to the thermostat setting of the other system. Most small businesses don't have such complicated controls. If your business does, however, you should consult an expert on your system before you tinker with the thermostats.

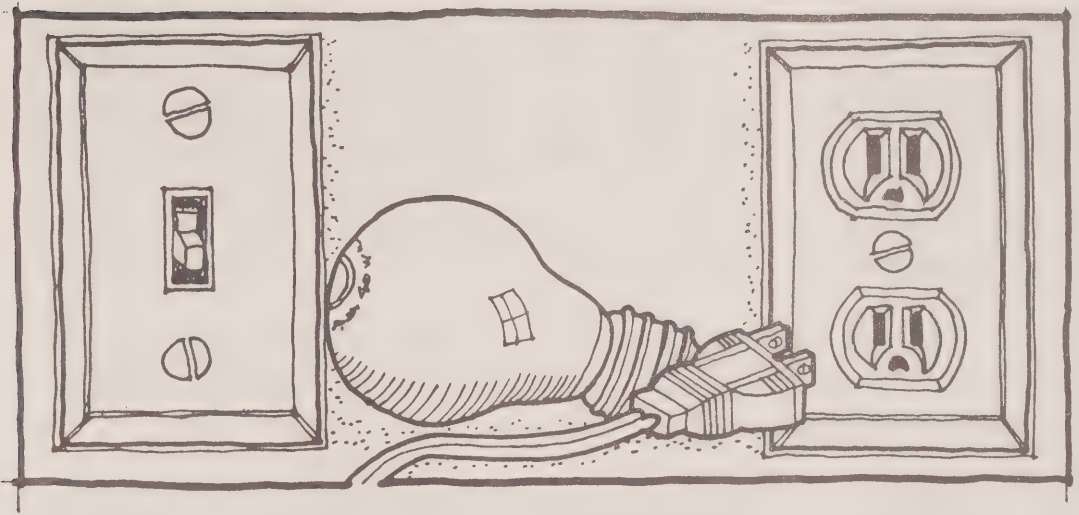


DOMESTIC HOT WATER

25. Install or repair insulation around hot water pipes.
26. Repair leaking hot water faucets.
27. Consider installing self-closing or spray-type faucets on hot water taps.
28. Consider lowering hot water temperature to 49°C (120°F).

Note to Laundromat Owners: Are your washing and rinsing water temperatures higher than they need to be for satisfactory service?

29. If your hot water heater is gas or oil fired, it should be checked by a service person along with the furnace.
30. Your hot water tank should be well-insulated. If it isn't, buy an "insulation jacket" which fits over the tank. Adding insulation to an uninsulated tank, can reduce heat-loss by up to 80%.
31. If you use hot water in cleaning and flushing operations, make sure the temperatures aren't too high. Don't use more water than the process requires.



LIGHTING

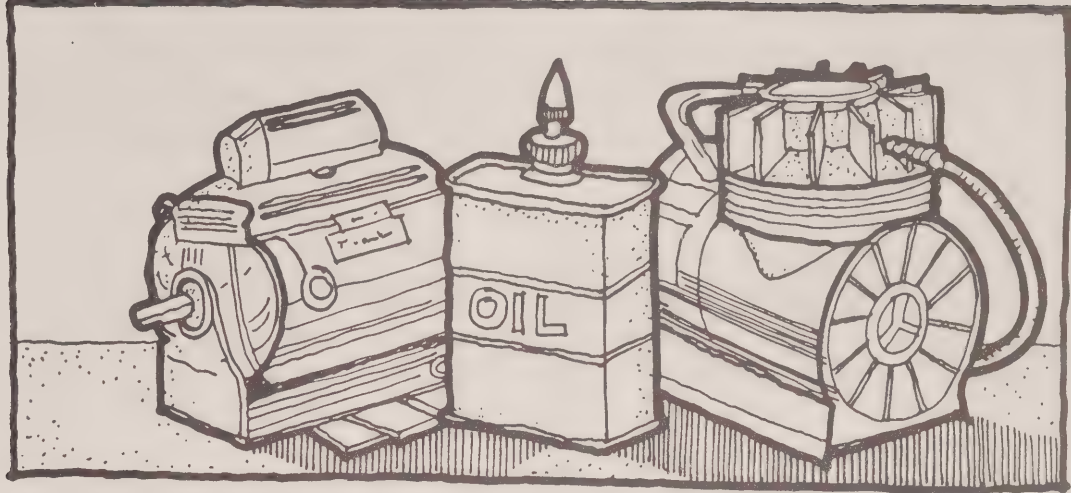
32. Reduce lighting levels where ever and whenever it is practical to do so. For example:
 - a) after hours lighting should be the minimum needed for security.
 - b) lighting often can be reduced during clean-up.
 - c) lighting in lunch rooms, storage rooms, and hallways should be lower than lighting in the work area. Consider putting in lower wattage bulbs or removing a few fixtures. Get advice from an electrician before removing or disconnecting flourescent bulbs permanently.

Note: If you have air conditioning, reduced lighting is especially worthwhile in summer. Less heat from lighting lowers the air conditioning burden.

33. Turn out all unnecessary lights (eg. lights next to sunny windows, unoccupied rooms). Post "Turn Off" signs by light switches.

Note: Don't worry about the "surge" of power which occurs when a regular (ie. incandescent) light is turned on. The electricity in the surge is less than the power needed to light the bulb for 3 seconds.

34. When replacing incandescent light fixtures, consider installing fluorescent fixtures. A 20 watt fluorescent tube gives as much light as a 100 watt regular bulb. And fluorescent tubes last much longer.
35. Keep light bulbs and reflectors clean. (Dirt and dust can reduce illumination by 50%).
36. When you re-decorate, use light color schemes to increase reflection. Remember to reduce lighting accordingly.
37. Consider using timers on illuminated signs, security lighting and display lighting. The timers should turn these lights on at dusk and shut them off when they are no longer needed.

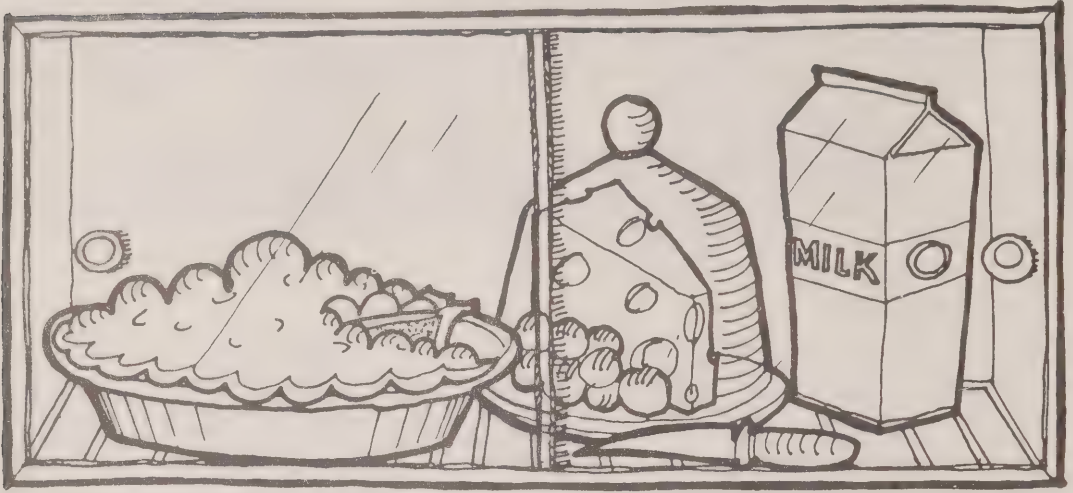


EQUIPMENT

38. Make sure motors, pumps and compressors are not overloaded or left running when they should be idling or shut down. Timers can be used to shut down large pieces of equipment automatically.
39. Make sure all mechanical equipment is in good repair.
 - Replace worn bearings and belts.
 - Lubricate as required.
 - Check for overheating, excessive noise or vibration.
 - Clean regularly.
 - Check belts for proper tension.
 - Check compressors for leaks.
40. Find out whether air pressure in compressors can be reduced without causing safety or operating problems.
41. If you have a central ventilation system or use a large amount of hot water, consider using a heat pump or heat exchanger to recover heat from exhaust air or waste water.

Note for Laundromat Owners: Consider using heat from dryers to heat the shop. But be careful about getting too much humidity in the building. Get advice from a heating contractor. A heat exchanger may be needed.

42. When buying a furnace, an air conditioner, a motor or any other major piece of equipment, get the right size for the job. Oversized or undersized equipment wastes energy.



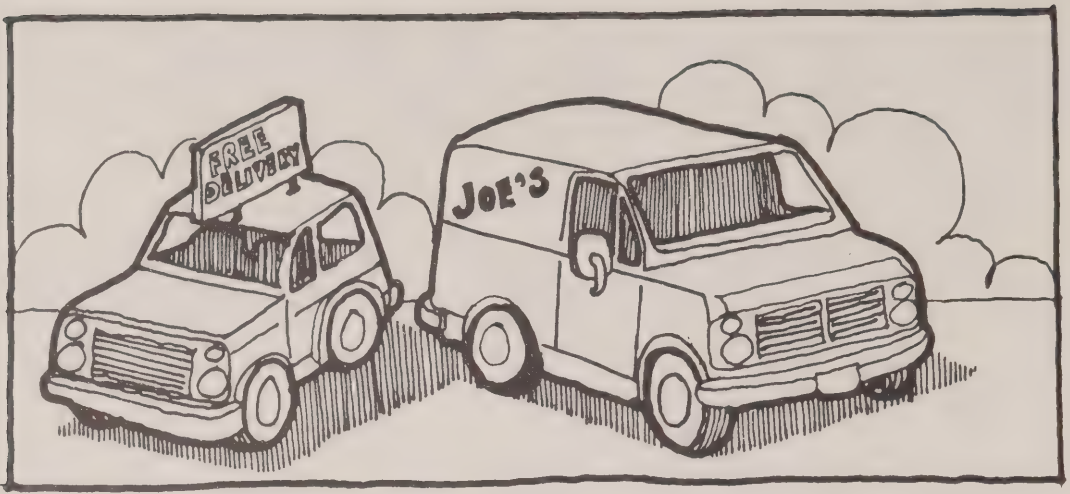
FOOD STORAGE AND COOKING

43. Install see-through doors on open freezers and refrigerated shelves. It will keep the heat out and reduce frost build up. In winter it will reduce the heating load. This is a big money saver!
44. Consider lowering or turning off lighting that is installed inside your refrigerated shelves. This will cut lighting costs and remove a heat source from the shelves.

Note: When you cut back the load on the cooling equipment for more than a short period of time (eg. light reduction or case cleaning) adjust the temperature and pressure controls to avoid running the compressor excessively.

45. Make sure that refrigeration temperatures are no lower than they need to be.
46. Make sure that refrigeration coils are free of dust, dirt and frost. Dirt or frost on coils holds heat in the cooling system.

47. Don't let more than 1/4 inch of "frost" build up in a freezer, as it reduces efficiency and makes the refrigeration system run longer.
48. Overcrowding a freezer, a refrigerator or a refrigerated display case blocks air circulation inside. This puts an extra burden on the cooling system. Similarly, a movable freezer or refrigerator should have enough room at the back and sides to allow free circulation of air around it.
49. Freezer, refrigerator and oven doors should close tightly. To test the seal, close the door on a piece of paper. If the paper pulls out easily the seal is poor and should be fixed.
50. Consider greater use of pressure cookers. They use less energy to cook food than regular pots do.
51. Cook with the lids on pots and pans whenever possible. A snug lid can cut the heat requirement by as much as 50%. Pots and pans should fit the burner or extend no more than an inch beyond it.
52. When cooking with gas, the flame should be clear, and bluish. If the flame is yellow, or has yellow the burner probably needs to be cleaned. If cleaning does not improve the flame, call your serviceman. The flame should just touch the bottom of the pot. A higher flame is a waste of gas.
53. Consider installing heat reflectors below the burners. Once installed, they should be kept clean.
54. Turn down or turn off frying tables and coffee makers when not in use. It generally takes less energy to warm up cooking equipment than it does to maintain a high temperature.
55. Don't have a refrigerator and a stove side by side.



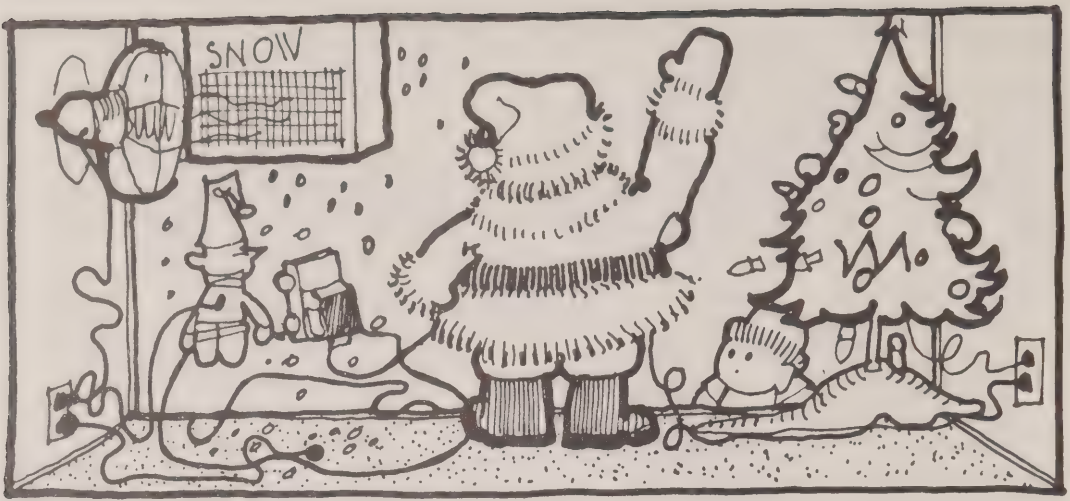
VEHICLES AND DELIVERY SERVICES

56. Have regular vehicle tune-ups.
57. Keep tires inflated to the recommended level.
58. Keep a mileage record for each vehicle. If mileage drops for no obvious reason, have the vehicle checked.
59. Encourage drivers to:
 - a) drive smoothly with even acceleration (no "jack rabbit starts")
 - b) drive at a maximum of 55 m.p.h.
 - c) turn off engines when they stop to deliver or pick up goods.
60. Plan delivery routes to keep them as short as possible.
61. Consider radio dispatching, or have the driver "call in" frequently.
62. Consider cutting down trips to outlying areas.
63. Avoid traffic jams by having pick-ups and deliveries made during offpeak hours.



PACKAGING AND GARBAGE

64. Ask customers if they need a bag, before you give them one. Paper and plastic bags take energy to make and cost you money.
65. Try to stock items that have returnable containers. For example, sell soft drinks in deposit bottles. Try to avoid stocking over-packaged and disposable products.
66. If there is a re-cycling depot in your town, please use it. Recycling paper, glass, metal etc. saves energy. Recycling depots need your support.



DISPLAYS

67. Try to make use of displays that are not electrically animated or operated.
68. Outside display lighting should be shut off in late evening (timers). Night lighting should be only the minimum for security.
69. Turn on parking lot lights only when needed. (timers)
70. Try to display as few as possible electric appliances at any given time (eg. have only one colour and one black and white T.V. turned on at one time). Operate other electric appliances (mixers, dishwashers, stereo's etc.) only on the request of a customer.
71. Try to run an energy-saving business and tell your customers about your efforts. Some of them will appreciate your awareness and visit your business more often.

What to Do Next?

By this point you have probably thought of many things you can do to cut your costs by avoiding energy waste. There are really only a few basic ideas behind all of the energy saving tips in this booklet:

- You can't save energy and money unless you can find out where the waste is occurring. A quick survey (audit) is essential - otherwise you may be putting your efforts into the wrong things.
- As a rule, heated space should be kept no warmer than necessary, and all unnecessary losses of this heated air should be avoided.
- Equipment should be run only when necessary, and it should be maintained in good working order.

Make a Simple Plan

As you think of improvements that can be made, they should be grouped according to cost and difficulty, as follows:

a) "The Freebies"

These are simple changes in the way you run your business. They cost little or nothing - such as fixing leaking hot water taps, turning off lights when not needed, lowering the thermostat. These are known as the "freebies" - things that are really just house-keeping changes. Most businesses can cut energy by about 10% on just these improvements.

b) Low Cost Modifications

These are also relatively simple changes, but which will require spending a little money. Things like more insulation; timers on lights, fans, engine heaters; changes to exhaust systems usually have attractive pay-backs. You will need help to evaluate these improvements. Contact your electrical contractor, mechanical contractor, furnace maintenance or insulation contractor to estimate the costs and help

you project savings. Another 10% cut in energy can usually be picked up here. A word of caution: In spite of all the concern about energy, there are still some who tend to play down energy conservation. Don't be mislead the price of energy is going to continue to rise and it's your dollars that are being wasted. If a contractor is lukewarm to conservation, find one who has already done some work and talk to his clients. Their experiences will be valuable.

c) Major Capital Projects

This is less important for small businesses than for industry, but improvements in the design of most equipment have been significant in the last few years. Improved furnace designs, improved refrigeration systems, more efficient electric motors are available, and equipment suppliers can be consulted. Replacing inefficient equipment which will involve laying down quite a few dollars, but the savings will go on for years, and the dollar value of the savings will go up as energy prices climb.

Other Help

Many groups and organizations are preparing materials specially designed for their members or customers. Some of these are trade associations, Chambers of Commerce, electric and gas companies. Magazine articles, pamphlets, slide shows, seminars are being offered in increasing numbers. Watch for them and take the time to use them. Remember, energy waste is your dollars!

WHY IS ENERGY CONSERVATION IMPORTANT?

In the 1960's, our energy bills were not very high and we thought that Canada's oil and natural gas would last a long time. So we did not worry very much about the growing amount of energy we were using - and wasting.

In 1977, we Canadians will consume twice as much energy as we used in 1963 - only 14 years ago. But today our energy bills are much higher than they were in 1963. One reason is the high price of foreign oil. Another reason is the enormous cost of producing enough oil, natural gas and electricity to supply our rapidly growing demand for energy. We are drilling for oil and gas in the far North, building expensive nuclear plants and putting up huge, remote hydro stations, so we can have more and more energy each year.

These new projects mean higher energy prices, higher taxes and serious environmental damage. Yet we waste a large portion of the energy we produce. Energy waste is costing us billions of dollars each year. Energy waste also is shortening the amount of time we have to develop new energy sources (eg. untapped coal reserves, solar power and wind power) before most of our oil and natural gas is depleted. Canada's oil and gas reserves are not nearly as large as we once thought. We may consume most of it in only 30-50 years unless we start using energy more efficiently, now.

By conserving energy you help to build a stronger Canadian economy and help to prevent a severe energy shortage. You also save a lot of money. Energy conservation is an excellent investment - one which pays increasing dividends as energy prices go up. Using energy wisely is good for Canada and good for your business.

Other Books on Saving "Energy Dollars"

100 Ways to Save Energy and Money in the Home

A book which shows homeowners a variety of ways to save money by using energy wisely. It covers topics from cooking to furnaces to garbage reduction.

The Billpayer's Guide to Furnace Servicing

Tells you how to help an ordinary oil or gas furnace in tip top shape to save fuel and money.

Garbage Book

The stuff we throw away takes energy to make and energy to dispose of. The Garbage Book shows you how you can save energy and money by throwing out less.

Keeping the Heat In

A complete guide to re-insulating your house. Also has sections on storm windows, weather stripping and caulking.

The Car Mileage Book

How to buy drive and maintain your car to save money and energy.

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